

## **Historic, Archive Document**

Do not assume content reflects current scientific knowledge, policies, or practices.



Reserve  
aQL737  
.R6A94

Notes from ...

W. B. K.

## PORCUPINE CONTROL MEETING

MODOC NATIONAL FOREST

October 1959



CALIFORNIA REGION  
U. S. DEPARTMENT OF AGRICULTURE  
FOREST SERVICE

TIMBER MANAGEMENT — PORCUPINE STYLE

AD-83 Bookplate  
(1-48)

**NATIONAL**

**A  
G  
R  
I  
C  
U  
L  
T  
U  
R  
A  
L**



**LIBRARY**

NOTES ON PORCUPINE CONTROL

From Training Meeting Held

On Modoc National Forest

Alturas, Calif.

Oct. 1959

U. S. DEPT. OF AGRICULTURE  
NATIONAL AGRICULTURAL LIBRARY

MAY 28 1987

CATALOGING = PREP.

Prepared By

JAMES L. AVERELL  
Insect and Animal Control  
Division of Timber Management  
Regional Office - U. S. Forest Service  
San Francisco, Calif.

Assistance in compiling these Notes is gratefully acknowledged. Thanks are due the 46 participants and especially Ken Smith, T.M.O., on the Modoc Forest, Dan Dotta of California Division of Forestry who recorded the summaries given by each Forest and Agency, the U. S. Fish and Wildlife Service for continuous support of our training efforts, to Tom Harris of the Regional Office for the effective summary of the "Key Points for Porcupine Control" and to Bob Reinhardt of Washington Office who suggested the participation by five western regions.

NOTES FROM PORCUPINE CONTROL MEETING  
MODOC NATIONAL FOREST  
OCTOBER 1959

## C O N T E N T S

	<u>PAGE</u>
PURPOSE OF THE MEETING . . . . .	1
KEY POINTS FOR PORCUPINE CONTROL . . . . .	1- 2
MAP OF PORCUPINE INFESTED AREAS IN CALIFORNIA . . . . .	3
PORCUPINE TIME TABLE - REGION 5 . . . . .	4
SUMMARY BY EACH FOREST AND AGENCY ON THEIR CONTROL WORK . . . . .	5- 8
STUDY OF FOOD HABITS AND TRAVEL ON MODOC N.F. . . . .	9
PORCUPINE CONTROL HANDBOOK MATERIAL, R-5 . . . . .	10-14
FOREST SERVICE WILDLIFE BIOLOGIST LOOKS AT OUR PROBLEM . . . . .	15
RANGER DISTRICT RECORD OF PORCUPINE CONTROL WORK . . . . .	16-23
WEYERHAEUSER COMPANY FORESTER DISCUSSES CONTROL METHODS . . . . .	24-25
ANIMAL PEST CONTROL PROGRAM IN REGION 6 . . . . .	26
REGION 5 PORCUPINE CONTROL ACTIVITY, F.Y. 1959 . . . . .	27
SOME RECORDS ON PORCUPINE CONTROL IN CALIFORNIA . . . . .	28
PORCUPINE CONTROL PROJECTS, SANTA FE, NEW MEXICO, REGION 3 . . . . .	29-37
ROSTER OF ATTENDANCE AT ALTURAS . . . . .	38-39





NOTES FROM THE MODOC TRAINING SESSION  
ON PORCUPINE CONTROL - 1959

The two-day meeting was called to order by Chairman James L. Averell at 8:30 A.M., on October 15, 1959 in the banquet room of Niles Hotel, Alturas, California.

Forty-six men were present from eight national forests in California, Regions 2, 3, 4, 5 and 6, U. S. Fish and Wildlife Service, Bureau of Land Management, California Division of Forestry, and State Department of Fish and Game. The timber industry was represented by the pest control forester from Weyerhaeuser Co., Klamath Falls, Oregon.

Thanks are due to all who attended and participated in the exchange of ideas. The U. S. Fish and Wildlife Service has assisted in each training session of this type. A memorandum of understanding between the two Services recognizes the Wildlife Service as our technical advisor on animal control.

A roster of attendance is included at the end of these Notes.

PURPOSE OF THE MEETING

1. Train several men on each Forest:
  - a. To appraise porcupine damage and assure that a problem exists.
  - b. To prepare control plans needed to support a request for funds.
  - c. To use methods that are safe and up to date.
2. Inter-regional exchange of ideas on how and when to do control work.

KEY POINTS FOR PROCUPINE CONTROL (1)

1. Identify the pest

Be sure of what you need to control. Is it porcupines, wood rats, mice, or squirrels that are doing the damage?

2. Survey

How extensive is the damage? Then appraise the effect.

3. Plan the control project

The How, Who, and Cost of control.

4. Your job is to accomplish control

Do the control where the damage is located.  
Use more than one method.

---

(1) As summarized by Tom Harris at end of Alturas training session.

5. Do a first-class job

Control funds are difficult to obtain.

Keep good annual records of what and where the work was done.

Maintain the treated area, to make it last. (Replace the used blocks.)

6. All the answers on pest control are not known

But a lot is known.

Be sure to use what we know.





2650 (2400)

PORCUPINE INFESTED AREAS  
IN CALIFORNIA



Protection needed.

JLA 2-17-60





PORCUPINE TIME TABLE - Region 5, California

JULY	AUGUST	SEPT.	OCTOBER	NOVEMBER	DECEMBER	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	(JULY)
<u>REGENERATION</u>												
:	:	← Breeding period -- →	:	:	:	(7 months gestation)	:	:	← Birth of single young: →	:	:	:
:	:	:	:	:	:	:	:	:	:	:	:	← Young found on low limbs →
<u>TRAVEL</u>												
:	← -- Summer-fall road travel -- →	←	←	Seldom see car-killed porkies in this period -- →	←	Spring travel →	:	:	:	:	:	:
:	← Porcupine groups in trees →	:	:	:	:	← In dens or slash :	:	:	:	:	:	:
<u>FOOD</u>												
85% is Grass-Herbs		Fall - 75% Bark		Winter - 100% Bark		Spring - 60%		Summer - 15% Bark		85% Grass-Herbs		
15% is Inner Bark		:		:		:		:		Grain or alfalfa - →		
<u>SALT</u>												
Some salt eaten by porkies all year												
Increased preference for salt												
Den blocks on Modoc eaten and more carcasses under trees												
<u>CONTROL ACTION</u>												
← -- Hunt roads at night -- →		:	← Snow Hunts -- →	Sunning in tall :		:	← Hunt meadows at night -- →	:	:	:	:	:
:	:	:	:	:	:	:	:	:	:	:	:	:
:	← -- (In Junipers-Modoc) -- →	:	:	:	:	:	:	:	:	:	:	:
← ----- →		:	:	:	:	:	:	:	:	:	:	:
Hot days in cottonwoods		:	:	:	:	:	:	:	:	:	:	:
or dense-crown pines		:	:	:	:	:	:	:	:	:	:	:
← -- Locate rest trees or dens and place salt blocks. Number and record them on map. -- →												
← Deer season -- →												
: 9/26-11/1 :												
: In crop fields:												
: Alfalfa, Grain: -- →												

JAMES L. AVERELL  
Division of Timber Management  
U. S. FOREST SERVICE  
San Francisco, California

In Black Hills in January, 50+ stonechick shrike  
approx 1/3 juv needed and 1/3 pure dark.  
1/3 dark



SUMMARY BY EACH FOREST AND AGENCY ON THEIR CONTROL WORK

REGION 5 - CALIFORNIA

1. Eldorado N.F. - Jerry Hill

Average 35 porcupines killed each year. Have 6 main areas on the Forest around camp grounds and pine plantations. Salt bait boxes are effective for plantations. One hybrid pine, the Jeffrey-Coulter x Jeffrey, is especially liked by porcupines.

Received \$450 for control this year. Will have the help of the Forest's wildlife biologist. Is hard to find a rest tree. Therefore, will use more salt bait boxes. Dead porkies have been found near boxes.

2. Inyo N.F. - Ranger Bill Murphy

Doing porcupine control on Mammoth District since 1951. Located one concentration area southeast of Mono Lake using poison blocks in dens and rest trees. Intend to make more damage appraisals this year--using 60 to 120 blocks a year. So far 36 porkies killed this fiscal year. Last year 55 were killed.

3. Klamath N.F. - Norman Dirksen

Problem is located on Goosenest and Callahan Districts. Control has been done on the Goosenest since July 1957. Have put a few salt blocks up in the Callahan area. Have made damage appraisals on both Districts.

<u>District</u>	<u>Damage Per Acre</u>
Callahan	\$14.36 (Average of all strips where damage showed.)
Goosenest	\$13.40 to \$40.30 per acre on areas damaged.

In F.Y. 1959, killed 414 porcupines--using blocks in rest trees and dens and also hunting. Some rest tree blocks are very effective, others are not. Keeping a record on each.

4. Lassen N.F. - John Mitchell

Organized control program--just getting started. The Almanor District spent last Fiscal Year \$454 to protect young pine plantations. Using salt blocks. Put out 413 blocks in trees, 61 blocks in boxes (June 1959). 3,500 acres treated at \$0.16 per acre and at \$1.15 a poison block. Estimate 300 porkies killed in F.Y. 1959. Need to check more areas to appraise damage and to make plans if warranted. We are anticipating porky damage in plantations and starting control before the damage occurs.

5. Modoc N.F. - Ken Smith

Killed 3,525 porkies in 1959. Modoc is now up to the annual allowable timber cut. This has helped expand porcupine range by opening up timber areas. Damage appears to be going down. We don't know the

full extent of porcupine damage.

Region 5 needs a technical life history study of porcupines. This should be accomplished to plan good control work. Need maps of damage, habitat, migration and where killed, to assist in future planning.

1,900 killed by road hunting at night and 1,625 by all other hunting. (3,525 total killed in F.Y. 1959.)

6. Plumas N.F. - Phil Intorf

Most control money is spent on the Eastside of Sierra Nevada Mts. (Mohawk and Milford Districts). 3 Districts killed 450 in past 12 months---mostly by hunting. Milford not happy with results from salt blocks. Hunting appears most effective for this District.

7. Stanislaus N.F. - Riley Gilkey

Started control work two years ago when trees were attacked in Wrights Creek ponderosa pine plantation. Some damage is now showing up on Spinning Wheel Plantation and in Jawbone area. Killed 5 porcupines at Wrights Creek. A BRC contractor and his dog killed two, others killed by salt bait boxes. Need to put salt bait boxes in Spinning Wheel Plantation now.

8. Tahoe N.F. - Hal Turner

Most work accomplished around Foresthill District during past 10 years. Are killing 12 porkies a year by hunting. Plantation around Nevada City being protected by blocks. The two Eastside Districts of Tahoe use both hunting and blocks. 38 have been killed by the Tahoe this year.

The Tahoe has prepared control plans for 3 Districts, has the funds and is now getting help from their Forest wildlife biologist.

CALIFORNIA DIVISION OF FORESTRY - Dan Dotta

Control work is accomplished through Service Forestry program with advice to small landowners. In the A.C.P. program, County committees require porky control on TSI projects in Plumas and Lassen Counties.

BUREAU OF LAND MANAGEMENT - Don Halsey

Work all done on a voluntary basis. No money allocated by the Bureau. The number killed each year is not recorded. The Bureau may be able to keep records by County or other Unit for the annual cooperative report to the California Pest Control Action Council.

U. S. FISH AND WILDLIFE SERVICE - Merle Barney

Care should be taken in handling poison blocks and seeing they are safely stored. Public dislikes any poisoning program. Carelessness arouses their antagonism. Safe methods are being used. Used to tie salt block to a limb and push it back into den. Ken Smith now wires block to a heavy



rock and pushes both back into den. Not likely to be dragged out by animals. May be necessary to block plantation areas heavier than normal. Put blocks in bait boxes big enough for porky to sit up in. A 12" square wooden culvert is too narrow for a porky to enter. Porcupines often have to migrate several miles to get to water.

WEYERHAEUSER COMPANY - George Kilen, Forester, Klamath Falls, Oregon

Dr. W. H. Lawrence of Company's research staff has published a "Problem Analysis on the Porcupine." Is now out of print but contains good ideas.

The Company has had an active program since 1955. George works on porky control 6 months of the year. Has two assistants. Budget \$6,000 per year on the 600,000 acres in Klamath Falls branch. Hopes to also work on 20,000 acres of Company land in California. Limited to cut-over areas, which are subject to most damage.

Klamath County bounties on porkies, 1957-1958-1959:

<u>Year</u>	<u>No. Porkies</u>	<u>Months</u>	<u>Dollars Paid Out</u>
1957	12,000	July-Nov.	\$6,000 @ 50¢/nose
1958	12,000	July-March	\$6,000 @ 50¢/nose
1959	3,000	1/2 way thru	\$1,500 @ 50¢/nose

No predator trappers are allowed on Company lands. The Company carries on their own rodent and pest control and assists ranchers to bait their lands. Company timber cruisers tally porky damage on plots to help control crew.

CALIFORNIA STATE DEPARTMENT OF FISH AND GAME - Jim Gilman

Gilman is concerned with game management. Has 18 game technicians in his District in Northern California. His men could best cooperate through noting porcupine occurrence or concentrations and notifying the nearest U. S. District Ranger.

Forest control men should enlist the help of E. G. "Red" Hunt of State Department of Fish and Game, Sacramento, whenever using poison blocks, bait or aerial spraying. He is glad to check your job for safety to game.

The State Game Laboratory is making the monthly stomach analyses of 10 porcupines collected on a township and 1/2 located southwest of Alturas in cooperation with the U. S. Fish and Wildlife and the Forest Service.

U.S.F.S. - REGION 2 - Milt Andrews, Denver, Colorado

Region 2 allots \$4,000 per year for porcupine control. Reported kill of 6,100 porkies in past year. Estimate about 10,000 more are killed by hunters, poison blocks, etc. Damage is chiefly to lodgepole and ponderosa pine. Most damage occurs in Black Hills.

U.S.F.S. - REGION 3 - Jay Cravens, Albuquerque, New Mexico

Porkies have been a problem for a number of years. In 1949, a noticeable buildup of porcupines occurred. In 1954, started a program of hunting. Need to teach men how to handle firearms. Concentrating all work in Santa Fe National Forest with \$2,200 per year.

Hired a professional hunter for two years to study habits and hunt porkies. Second year he trained a dog (tried 7 dogs). The dog doubled his kill. Now kills 500 porkies per year of 10 months. Costs \$4.00 per porky.

(See abstract of R-3 Annual Porcupine Control Reports in back.)

U.S.F.S. - REGION 4 - Don Goodrich, Ogden, Utah

No records kept on kill. Hope to make damage appraisal. Records of acres treated have been kept. Now need to get plans prepared for control. One forest killed 1,500 porkies at a cost of \$1.00 each. Dixie Forest hired two professional hunters who averaged 40 porkies a day for a total of 7,000 killed. Rangers have been issued pistols to do hunting.

U.S.F.S. - REGION 6 - Ben Howard, Portland, Oregon

The porcupine is one of the major animal pests in eastside pine type. Has wiped out some plantations. No special program. Each forest is allowed to set up its own. Need a Region-wide system of reporting and appraisal.

44,000 porkies were killed in Oregon and Washington in C.Y. 1959. Over half were in southeastern Oregon.

Using hunting and poison blocks. Encourage forests to hire professional hunter with frequent inspection to place these hunters in right place at right time of year. Proper publicity helps in killing porkies.

May obtain some reaction to this work from conservation groups and should expect it.

(End of 5-minute summary by each Forest and Agency.)

# STUDY OF FOOD HABITS AND TRAVEL ON MODOC N.F.

Ken Smith

A cooperative study is being made of porcupine travel and food habits. Area picked of 1-1/2 townships for this work. Logged first in 1940 for pine and later for white fir. It is now a good porky habitat for the study.

Tagged 75 porcupines with metal minnow tag numbers in the car. Only one has been recovered 1/2 mile from where tagged. Still no answer to migration habit. Now using point marking of porkies in Juniper flats 8 miles from pine timber in study area.

Ten stomachs taken each month by U. S. Fish and Wildlife Service to be studied for food habits. Howard Leach of California State Department of Fish and Game doing the analyses..

## Results:

In March, 98% Juniper tree leaves to 100% ponderosa pine needles.

Were living on Juniper and pine needles, no bark.

As spring came on, animals began eating ground vegetation such as Knotweed. As it became drier, the porkies went back to tree needles (pine and Juniper) no bark found in stomachs up to August.

Average of 282 grams of vegetation consumed each day. This is approximately 9% of live weight.

Don McIntosh (Don, of the U.S. Fish and Wildlife Service, continues the stomach collections after Riley Patterson was transferred.)

Study area is near manzanita Lookout, 10 miles southwest of Alturas. Porkies for analysis should be caught both in day and night, to get good sample.

Knotweed made up a good portion of the food in August and September.

Results of this food habits study will be summarized by the Modoc Forest and the cooperators when collection is completed.

PORCUPINE CONTROL HANDBOOK MATERIAL, R-5 - Averell

Averell distributed the following Handbook separates, used by Region 5 and discussed some of their features:

1. Appraising the Damage Done by Porcupines to Trees.  
See sample Computation Sheet - Form 471-R5.
2. Control of Porcupines.  
See map of NE California and areas where protection is most needed.  
See Porcupine Time Table, R-5.
3. Guide for Working Up a Project Plan for Porcupine Control, R-5.
4. Salt Blocking Trees for Porcupine Control.  
Size and Structure of Wooden Block. (R-5 type)  
(Pocatello type of block is 1-3/4"x1-3/4"x5".)  
Placing the Block in the Rest Tree.



471-R5  
8/20/58

(SAMPLE COMPUTATION)

COMPUTATION SHEET FOR PORCUPINE DAMAGE

N F. Modoc Rgr. Dist. Goose Lake Control Unit Sugar Hill Plantation  
Date 8-10-56 Appraiser Rgr. John Joe T. 45N, R. 14E, Sec. Planted areas  
Species PP - JP Age 1934 22 yrs. Ht. 10-12 ft.  
Site IV Exposure Varied Slope Varied % Nat. Regen. Or Planted Planted  
40 Acres Sampled By 2 Acres Of Strip = 5 % New Damage 32 Trees Per Acre

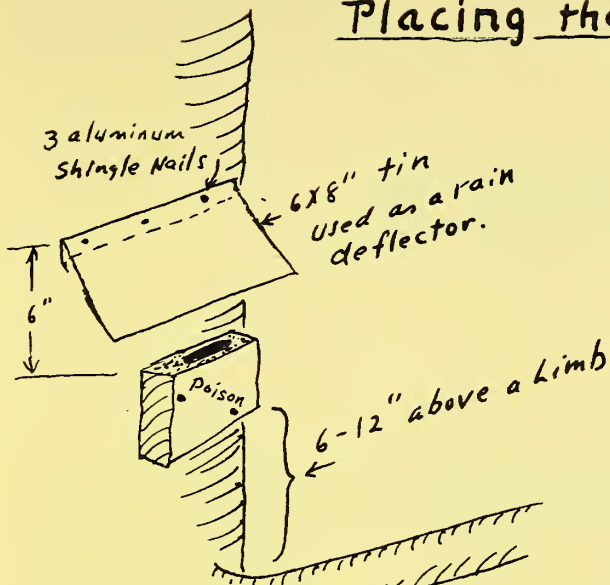
Condition Of Trees	Trees Per Acre - Doms. Codoms.:				
	Used In Computing Loss :		Loss		
	For Sawtbr. For Pulpwd.:		Per	Total	
	Total	90 Trees	132 Trees	Tree	Damage
1. Doms. Codoms. Undamaged	79	79	-	-	-
2. Recovered	35				
Loss In Sawtimber		11		\$0.28:	\$ 3.08
Loss In Pulpwood			24	0.02:	0.48
3. Damaged, but not Girdled	0				
Loss In Sawtimber		-		0.06:	-
Loss In Pulpwood			-	0	-
4. Girdled above 18 ft.	0				
Loss In Sawtimber		-		1.86:	-
Loss In Pulpwood			-	0.09:	-
Growing Stock Left	(114)				
5. Ruined	122				
Loss In Sawtimber		-		3.36:	-
Loss In Pulpwood			108	0.15:	16.20
TOTAL PER ACRE	236	90	132	-	\$(19.76)
Desired Stocking 100%	222	Additional loss in plantations only:			
Excess Or Deficient 6 %	14	14 excess trees x \$0.14 each - \$1.96			

Instructions - (All figures are on a per acre basis.) Total loss - \$21.72 per acre

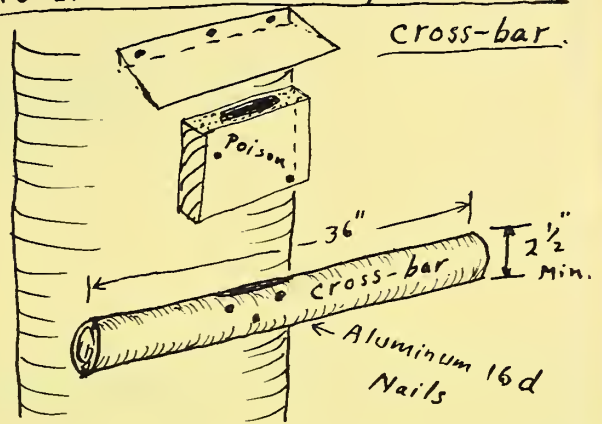
- First enter the undamaged trees.
- Then list the damaged trees per acre opposite proper condition classes.
- Enter trees under "Sawtimber" column until 90 trees are listed.
- Then enter under "Pulpwood" until 132 trees are listed.
- Additional trees are "excess" and do not enter into loss calculations. (except in
- Then compute the total damage using the "loss per tree" on the form. plantations)
- Write brief statement on back as to the porcupine situation: stocking of trees, damage done to date, recent damage, what will happen if no control, recommendation as to further control work.



# Placing the Block in the Rest Tree.



If no limb within reach, nail on a cross-bar.



Rest tree

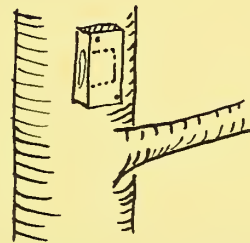
10 feet minimum height above ground.  
15'-25' better

## Bad Practice

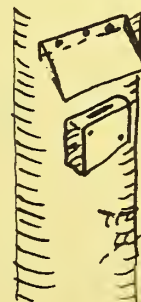
1- Too near the ground.



2- No tin roof, so nailed sideways or up-side-down.  
salt easily falls on ground.



3- No Limb to sit on.



The Limb that wasn't there.

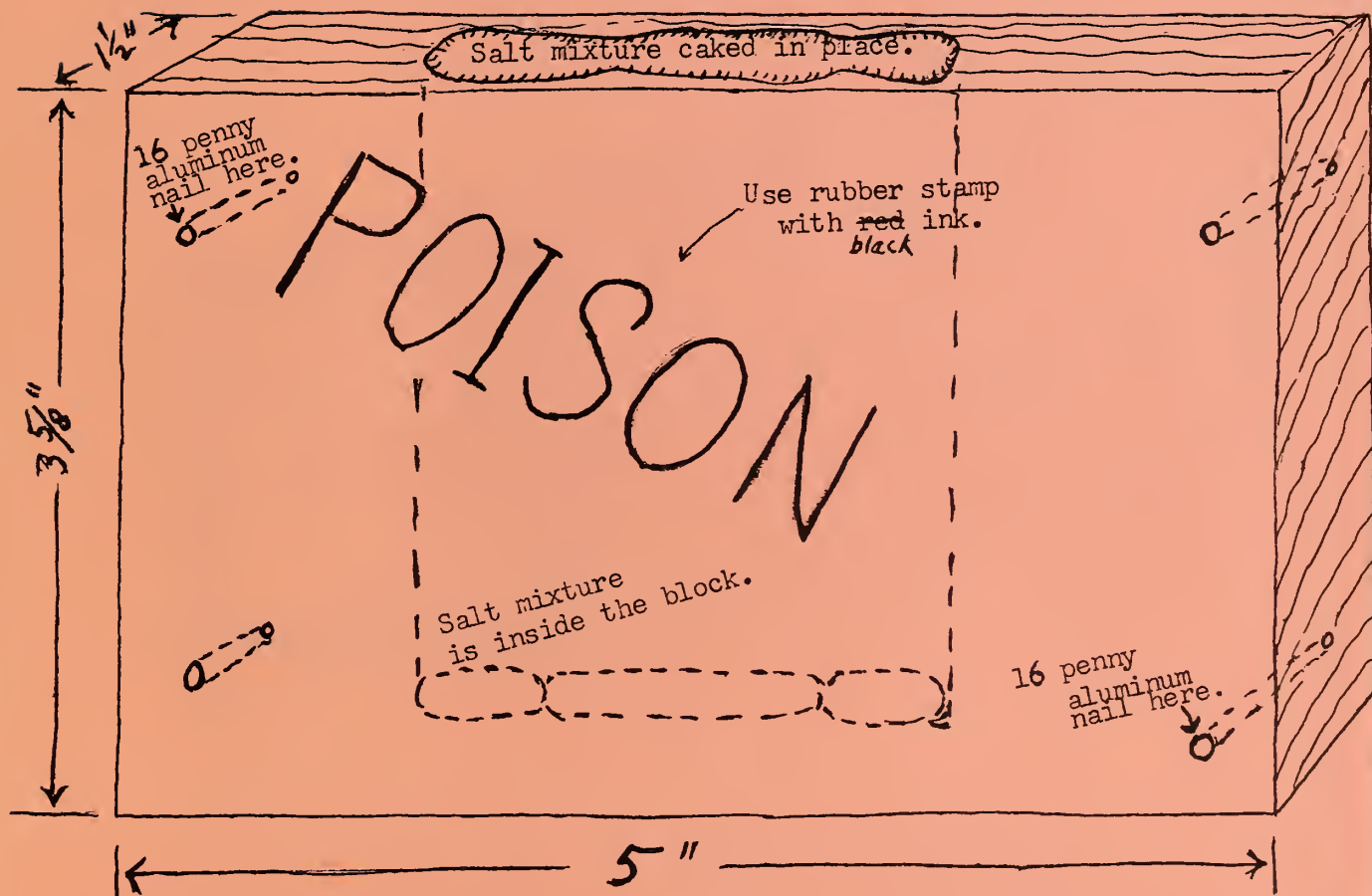
(even a Bar has a brass rail to rest on!)





# SIZE AND STRUCTURE OF WOODEN BLOCK \*

(Used for Blocking "Rest" Trees or Wired  
to Rock or Stick for a Den)



Four holes in block are to  
give choice.

Never need to use 4 nails.

Always use aluminum 16 penny  
nails.

\* R-5 type of block.  
The Pocatello type is  
2" X 2" X 5"

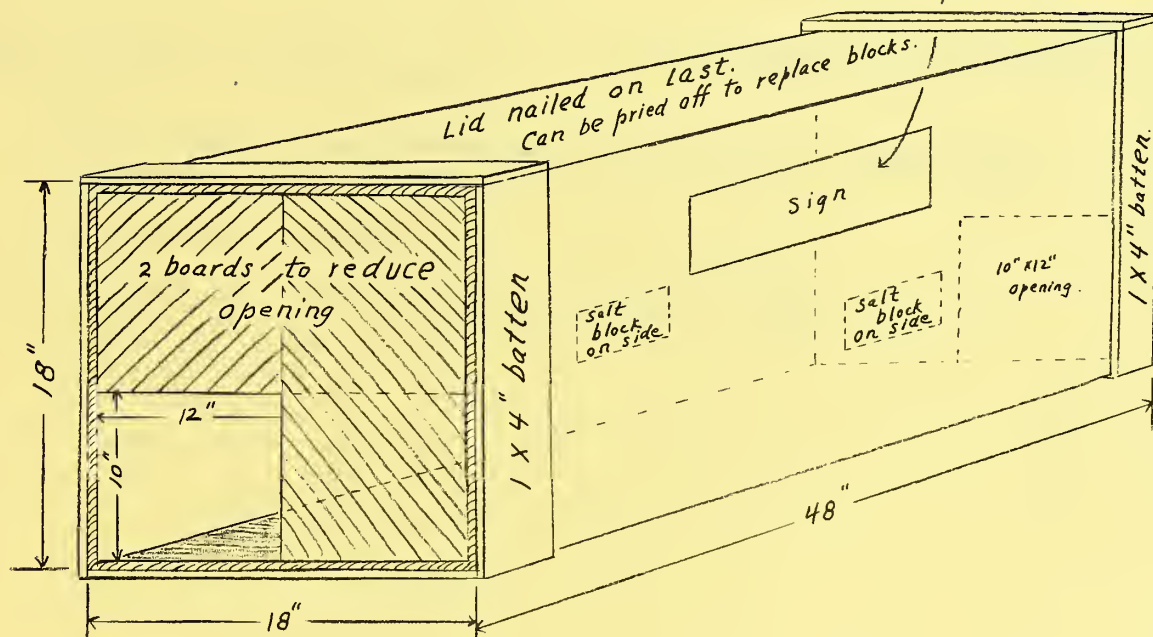
U.S.F.S., R-5 - California

J.L.A. 10-11-59



Development & Control Program - porcupines.

**Do not disturb.  
Porcupine bait cubby box.  
Poison - U.S. Forest Service.**



Lumber is 1" thick, low grade cedar or other durable wood.

U.S.F.S. R-5  
10-1-59 J.L.A.



Organize control records so they will be usable by all Districts. (See sample instructions at end.) Records of what has been done in the past should be summarized. Have all districts submit same type of records. Primary interest is to learn how and where to locate the porcupines. The efforts can then be directed.

Crews should report kills and the location. Build up a map showing time and place. Is a valuable guide for future hunts. Show areas of concentration.

Some Forests are setting up a census system with a definite set of rules. This will establish a trend for the population on the forest. He explained a map setting up a census route through various vegetative types and run four times a year at a set time. (This census is to establish a trend, not an exact population count.)

Forests having a biologist can set up a porky marking system to determine the migratory habits of porcupines.

- a. Need a porky marking paint that will remain for a long time on the animals (8 to 12 months).
- b. With captive animals, check on food preferences.
- c. Try different types of poisons, scents, or baits.



RANGER DISTRICT RECORD OF PORCUPINE CONTROL WORK

(As developed by Modoc N.F.)

Here is a guide for a uniform system of planning and recording porcupine control work. This has been developed and used by the Modoc Forest and appears to be workable. A district porcupine control Atlas is necessary for maintaining cumulative information. Likewise a basic uniformity between districts is necessary before we can compile forest-wide or Region-wide statistics.

Order 7-1/2' quads for complete district coverage to set up the Atlas. Use the legend, and otherwise follow these guides as minimum requirements. Cost to each district porky fund is 30¢ per 7-1/2' sheet.

1. Set up Porcupine Control Atlas, 21" x 18" (top), consisting of complete district coverage via the new 7-1/2' scribe sheets. In front of Atlas, a 1/2" green administrative map or maps of district. This to serve as a quick summary or picture of data presented in greater detail on 2" quads.

A Title on the Atlas.

2. Records in Atlas.

(A) Data to record on 7-1/2' quads.

- (a) Current damage. (Defined as any evidence of porcupine work on 1 or more crop trees per acre within past 12 months.)
- (b) Seasonal concentrations.
- (c) Rest trees, dens, bait box locations (by number).

(B) Data to record on 1/2"/mi. green administrative maps.

- (a) Record of each fiscal year's organized control work.
- (b) Spot map showing location of porcupines killed.  
(The current years' map will probably be on office wall.)
- (c) Road count routes (measurement of population trend).

(C) Tabular Data.

- (a) Field Record of Porcupines Killed, Form 542-R5.
- (b) Record of Porcupine Rest Trees, Dens, Bait Stas., Form 543-R5.
- (c) Porcupine Control, Accomplishment Record, Form 544-R5.
- (d) Porcupine Road Count (Measurement of Pop. Trend), Form 545-R5.
- (e) Porcupine Damage Appraisal, Form 455-R5.
- (f) Computation Sheet for Porky Damage, Form 471-R5.



(D) Legend.

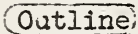
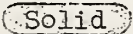
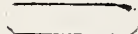
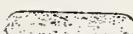
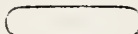

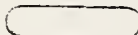
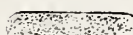
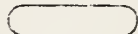
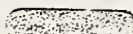


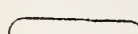

Attached on separate sheet.

3. It is intended that this system outlined above can be set up by district clerks or other interested persons. Likewise that each district will have an interested worker who will keep it going. It is not the intent to load key district staff with the job, in fact it may be a means to bring some of our foremen along to accepting more responsibility. It will require your initial guidance plus some supervision to see that field instructions and work records will be readily transferred over into the permanent Atlas records. For instance, TSI crews should be instructed to fill out Porcupine Damage Appraisal Forms, #455-R5, when they encounter current damage. To accomplish this will require the initial instruction, plus followup to see that the appraisal of damage is made.






LEGEND, for Porcupine Control Work Maps and Atlas Maps

1. Legend for Control Work Map (by 5-year periods).

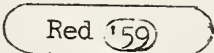
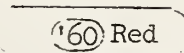
	<u>Proposed</u>	<u>Accomplished</u>	<u>Color</u>	<u>Mongol No.</u>
1959			Orange	862
1960			Dark blue	865
1961			Violet	814
1962			Yellow	867
1963			Dark green	868
1964			Orange	862
1965			Dark blue	865

(color applied lightly)

2. Mapping symbols.

	<u>Located</u>	<u>Proven Effective</u>
Rest tree		
Den		
Bait Box		
Porcupine taken by day		
Porcupine taken by night		

3. Current damage

	<u>Color</u>	<u>Mongol No.</u>
  etc.	Red	866

4. Seasonal concentration.

(Show months)

  etc.	Brown	863
--	-------	-----

- Notes: #1. Use same colors by years, as shown above.  
#2. Order a set of Mongol colored pencils for each district.  
(Mongol colors can be set by camels hair brush and water.)











N.F. \_\_\_\_\_ PORCUPINE CONTROL, ACCOMPLISHMENT RECORD

Ranger District \_\_\_\_\_

For Period: \_\_\_\_\_ 19\_\_ to \_\_\_\_\_ 19\_\_ Fund: \_\_\_\_\_

This form supplies the information for the Annual Planting and TSI Report, due in S. O. July 10. Use separate pages for P&M and for K-V expenditures.

Clip Board Binding Margin

Item	Accomplishments by Periods of Control Work					Total For Fiscal Year 19__
	___ to ___	___ to ___	___ to ___	___ to ___	___ to ___	
No. Rest Trees Blocked or Reblocked						
No. Dens Blocked or Reblocked						
Bait Boxes Placed or Rebaited						
Porcupines Killed:						
1) By F.S. Personnel						
2) By Cooperators						
Acres Given Control Treatment (From Maps)						
Man Days by F.S.						
1) Porky Funds						
2) Contributed M/D						







N.F. \_\_\_\_\_ Rgr. Dist. \_\_\_\_\_

A. Route Description: \_\_\_\_\_

Starting Point \_\_\_\_\_ Ending Point \_\_\_\_\_

B. Date: \_\_\_\_\_ G. Speedometer (Start): \_\_\_\_\_

C. Time DST: Start \_\_\_\_\_ H. Speedometer (Stop): \_\_\_\_\_

D. Time DST: Stop

E. Cloud Cover: \_\_\_\_\_

F. Temperature at 2030 hrs.:

[illegible]

(Over for Instructions)

## INSTRUCTIONS FOR PORCUPINE ROAD COUNT (Population Trend)

1. Porcupine census data shall be taken on or about the following dates: July 15, July 30, August 15, and August 30. (Peak of summer travel will be one of these dates.)

A. Route Description - Briefly describe the route taken during the census.  
Follow same route each time.

E. Cloud Cover - i.e., clear, partially cloudy, cloudy.

2. There will be at least two observers present when the census is being taken.
3. The census will start at exactly 2030 hours and not be run during stormy weather.
4. Travel speeds during the census period will be 20 - 25 m.p.h.
5. All porcupines seen along the route will be killed and all of the necessary data recorded on the census sheet, including speedometer reading.

Column 4 - Determine if the porcupine is juvenile or adult and check appropriate space. (Up to 12 months age.)

Column 7 - Record the major vegetation type in which the porcupine was killed, i.e., pine, juniper, sage, etc.

6. Only those porcupine that are seen by the use of the vehicle's headlights are to be recorded. The use of any other type of artificial light or other device is forbidden. Show census route on porky atlas map.
7. Upon completion of each census route, the data sheet will be filled out in duplicate. One copy to be forwarded to the TMO in the Supervisor's Office and the other filed at the Ranger Station under file designation 2650.

Safety First: Driver will keep his eyes on the road and concentrate on driving. Pull off to side of road, set brake, leave in gear, before driver steps out.

Clubs are safer and more effective at night than guns.

WEYERHAEUSER COMPANY FORESTER DISCUSSES CONTROL METHODS

George Kilen - Weyerhaeuser Co., Forester on Animal Control

Buy salt blocks from U. S. Fish and Wildlife Service at Pocatello, Idaho--28¢ a block. With a mixture of 8 parts salt to 1 of strychnine. R-5 usually uses 16 to 1 mixture. He recommends R-5 try the stronger mixture. More apt to find the results close by.

Works out of Klamath Falls, Oregon.

Principal methods used on Company lands in southern Oregon are hunting and salt blocks in their especially designed light weight, inexpensive shelters for salt blocks. (See detailed plan.)

The Forest Service can order the 2 pieces of 18"x36" Grade C. hardboard from the Company. The wooden strips and nails can be secured locally.

Send order to Weyerhaeuser Co., Klamath Falls, Oregon.

1 pair Grade C. hardboard pieces cut 18"x36"-1/4" thick.

Cost per pair, delivered to Nevada City, Calif., est. @ \$0.75.

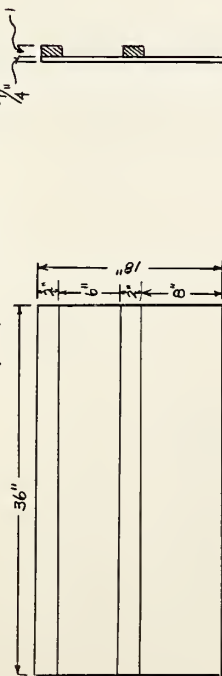
A complete box with 4 salt blocks and installed along a meadow or in a pine plantation costs about \$5.00 in place. Use pressure spray paint can of paint and stencil to mark on each bait shelter the number of the shelter and "Porcupine bait-poison."

Placement of the bait shelter is important. They are very effective along water courses (and in plantations). Season starts right after snow leaves in May, until November, after the migratory season.

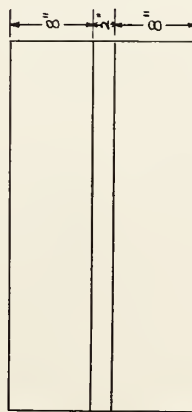
Has also tried bait boxes made of steel barrels or wire netting with gate, costing \$75 each. Prefers the fiberboard shelter.



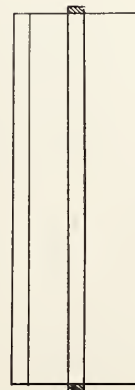
# PORCUPINE BAIT BOX (weyerhaeuser design)



Side 'A'

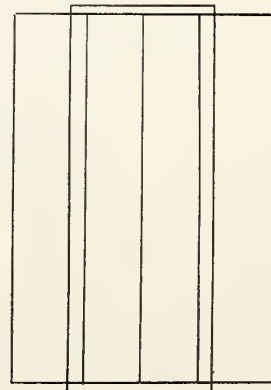


Side 'B'

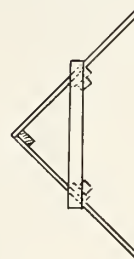
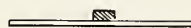
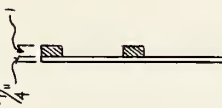


Side

Views of Box Completed



Top

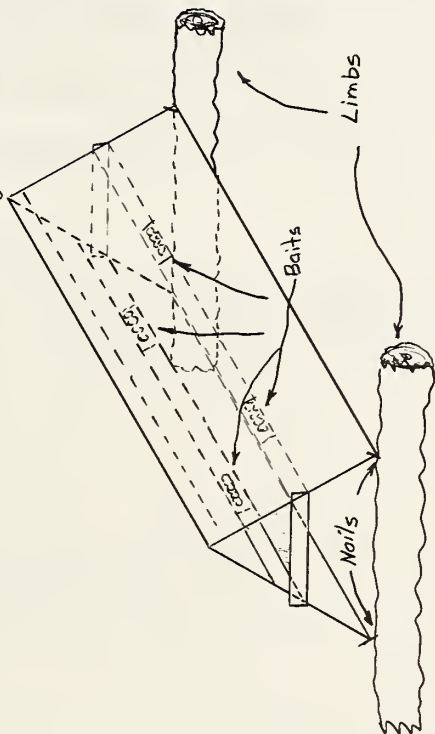


End

## List of Materials

- 2 pcs. 1/4" tempered hardboard 18" x 36"
- 3 " - wooden cleats 1x2-36"
- 2 " - " 1x2-14"
- 24 Nails - 1 1/4" ring shank
- 8 " - 8d box nails for bait block.
- 4 " - 2" to fasten Limbs on ground.

2 or 4 strychnine baits.



COMPLETE BOX SET IN WOODS



ANIMAL PEST CONTROL PROGRAM IN REGION 6 - Ben Howard

Rodent control is necessary for successful reforestation in Region 6. Mice, gophers, rabbits, mountain beaver, and porcupines. Job is just beginning after successful planting:

1. Need identification of problem animal.
2. Need systematic control and follow through.
3. Training schools in pest control are effective.
4. Preparing booklets on identification and control.

Paul Talich - Baker, Whitman N.F.

Control plans for a district include a prize to kill porcupine. Deer hunter posters are put up to encourage hunters to kill porcupines.

Rudy Robles - Fremont N.F.

Bounty system 50¢ per nose.

1958 -- \$3,000 Fremont 16,894

1959 -- \$2,500 4,000+ so far

Jackson County \$2,758

23,500 killed to date in bounty program.

Friday's Trip - Ken Smith

Meet at 8:00 A.M. Forest Service Warehouse.



R-5 PORCUPINE CONTROL ACTIVITY, F.Y. 1959

<u>Forest</u>	<u>Area Worked</u>	<u>Accomplishment</u>			<u>Cost</u>
		<u>Porkies Taken</u>	<u>Trees Blocked</u>	<u>Dens Salted</u>	
Eldorado	600	35	-	-	\$ -
Inyo	4,000(Est.)	55	90	6 Boxes	-
Klamath	21,100	414	114	110	3,500
Lassen	3,500	300	413	61 Boxes	300
Modoc	61,000	3,525 <sup>(1)</sup>	410	104	8,823
Plumas	20,500	450	43	5	2,443
Sierra	-	35	-	-	-
Stanislaus	300	19	-	4 Boxes	-
Tahoe	<u>2,000</u>	<u>38</u>	<u>-</u>	<u>-</u>	<u>-</u>
Total	113,000	4,871	1,070	290	\$15,066
Costs		\$3.08/Porky			13.2¢/acre Worked

Estimates from Other Regions

R-2		6,124 <sup>(2)</sup>	-	-	4,000
R-3	230,000	505	-	-	2,807
R-4		8,500 <sup>(2)</sup>			?
R-6		<u>44,000</u> <sup>(2)</sup>			?
Total R-2,3,4,5,6		64,000			

(1) Regarding Modoc's 3,525 porkies taken: 1,900 were after sundown and 1,625 by day.

(2) Includes more than project kill, such as bounty kill and by cooperators.

SOME RECORDS ON PORCUPINE CONTROL IN CALIFORNIA

<u>Fiscal</u> <u>Year</u>	<u>Area Worked</u>	<u>Accomplishment</u>			<u>Cost</u>	<u>Remarks</u>
		<u>Porkies</u> <u>Taken</u>	<u>Trees</u> <u>Blocked</u>	<u>Dens</u> <u>Salted</u>		
1934	Modoc, Lassen, Plumas N.Fs.	10,705	13,027	3,500	No Record	From USF&WL Serv. CCC program.
1935	All Eastside	12,827	16,638	3,938	No Record	NIRA program.
1936	(No work recorded.)					
1937	Modoc, Lassen, Plumas N.Fs.	742	2,898	829	No Record	Reworked 1934 area.
1956	46,700 Acres	4,000	-	-	\$ 4,000	
1957	43,000 Acres	5,200	1,200	800	5,200	Reported to Pest Council. 2/11/58
1958	56,000 Acres	5,300	-	-	6,370	" 11/5/58
1959	113,000 Acres	4,871	1,070	290	15,066	" 3/6/60



NOTES FROM: 'PORCUPINE CONTROL PROJECTS, SANTA FE NATIONAL FOREST, NEW MEXICO, REGION 3.'

Extracts from two Annual Reports, F.Y. 1958 and F.Y. 1959, brought to the Modoc Porcupine Control Session, October 15-16, 1959, by Jay Cravens of Region 3.

These reports are unusually complete. Some of the facts were not fully covered at the meeting so Jay Cravens kindly lent them to us and the following abstract was made:

I. Forest type, Santa Fe National Forest, New Mexico.

Elevation - 7,000 to 9,000 ft. where porcupine damage occurred to ponderosa pine.

	<u>Acres</u>
National forest land on Santa Fe. N.F. -----	1,230,000
Commercial forest type -----	825,000

Ponderosa	412,000
Mixed conifer	248,000
<u>Spruce, fir, aspen</u>	<u>165,000</u>
Total number	825,000 Acres

II. Acres hunted and the kill per acre.

Acres hunted - 230,000 (from maps av. '58 and '59).

Number days hunted per year - 127 (no. of hours divided by 8).

Gross acres covered by hunter per day - 1,800 acres = 2.8 sections per day.

III. Porcupine population "guestimate" (made by abstractor).

Porcupines killed by hunters - 435 (on 230,000 acres hunted).

By district men and cooperators - 350 (on 660,000 acres pine and mixed conifer).

Total killed per year ----- 785

Assuming this is 1/3 of popu-

lation ----- x3 (assumption by Region 5)

Est. of total population ----- 2,355

Based on ponderosa pine-mixed conifer area of 660,000 acres, this is one porcupine per 280 acres of pine and mixed conifer, or one porcupine per 175 acres of ponderosa type.

#### IV. Damage.

The loss in future stand production from porcupines is truly serious on this Forest. Heaviest damage occurs in ponderosa pine pole stands in TSI areas, along streams with grassy openings, and in recreation areas. Some pruned crop trees are being damaged.

#### V. Method.

1. Hired a GS-4 local hunter eight months a year for two years. Had worked for the U.S. Fish and Wildlife Service as a trapper. Used a dog in hunting, especially the second year. Out of seven dogs tried out, only found one that was both cautious and a good hunter. One died from porcupine quills. By use of the dog in hunting, 34% more porkies were killed the second year (497\* vs. 372), even though he worked 22% less hours (1,013\* hours vs. 791 hours hunting).
2. Put 71 salt blocks in rest trees and dens, but no record kept of kill. Each tree marked by a painted letter or number, and shown on map.
3. Results at end of two years.

- a. Hunting is the most effective.
- b. Steel traps need an effective scent. Caught 15 porkies in 1958 and 8 in 1959. Seal oil was a poor scent. Would take 200 traps and the full time of the project hunter.
- c. Salt blocks in dens and rest trees are used, but difficult to get the count on kills.
- d. Tried 14" diameter steel culverts for salt blocks, wire drift fences leading to bait boxes, and "pup-tent" bait shelters, as described by Weyerhaeuser's Dr. Wm. H. Lawrence. Latter are most efficient. Effectiveness probably is seasonable.
- e. Night hunting of the meadows in spring and along roads in summer proved more efficient per porky killed, than day time hunting.

Hunting required:

- 1.6 hours to kill a porky at night, and  
3.1 hours to kill a porky in daylight.
- f. Porkies killed in October were surprisingly low. Probably indicates that the concentration areas for breeding were not located.

\* Figures used here for time and kill include those from June 1957.

4. Check plots on damaged areas.

Tallied damage on trees 1'-12" DBH on a 2-1/2-acre plot.  
Found 39% of trees were damaged from light to heavy.  
In F.Y. 1959, put in seven 1/2-acre damage plots to follow  
future damage.

5. Annual record of porcupine kill on Santa Fe N.F., by District men.

<u>C.Y.</u>	<u>No. Killed</u>
1955	201
1956	364
1957	159
1958	261 (89+172)
Four Year Total	985
Average Per Year	246

6. Recommendation at end of second year of intensive control.

- a. The problem is of such serious proportion that special effort should be made to determine feasible control method.
- b. Work done on the Santa Fe National Forest in past two years has value in control. The Forest recommends it be continued until a better solution can be found.



7. Breakdown of project costs, F.Y. 1958.

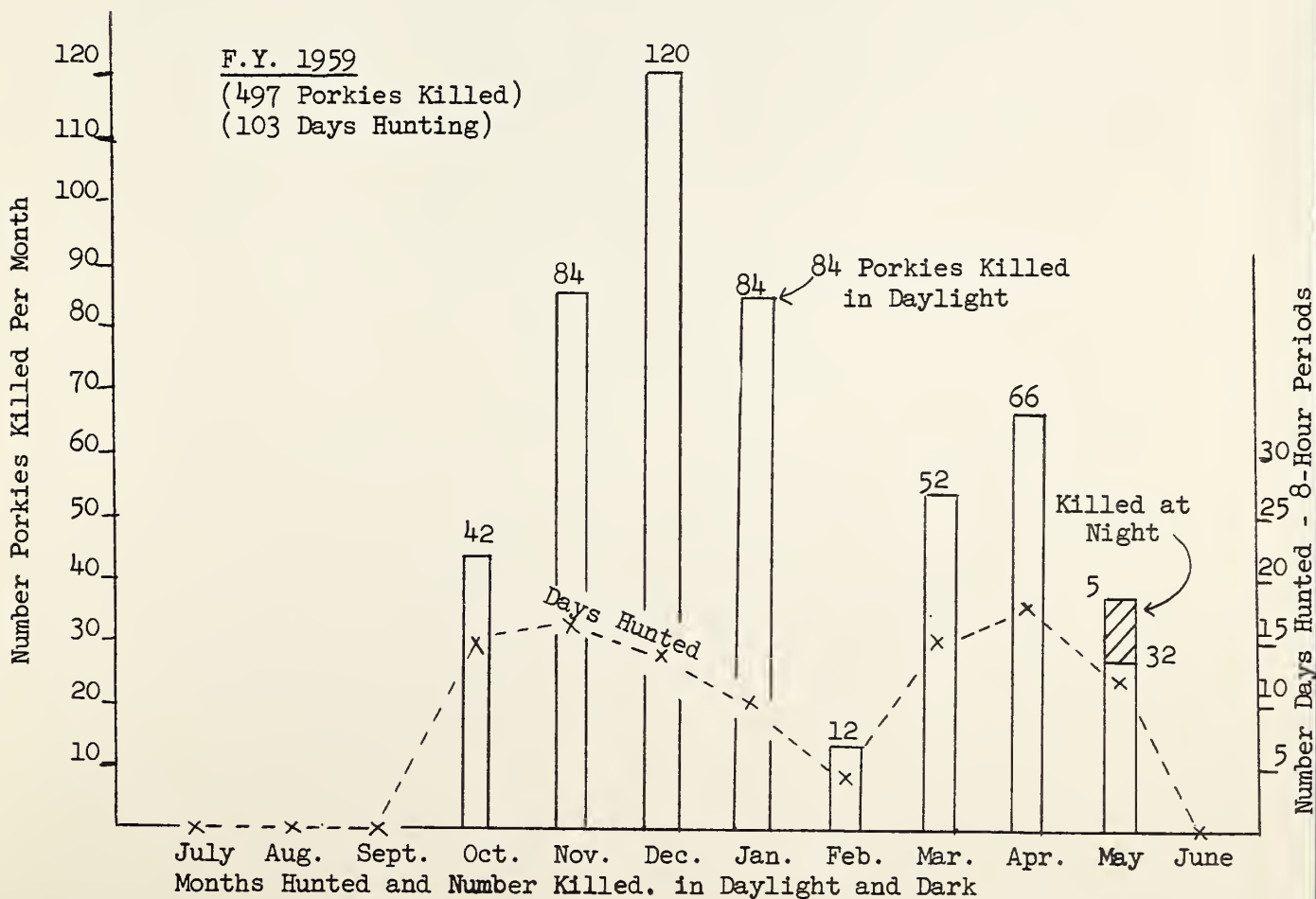
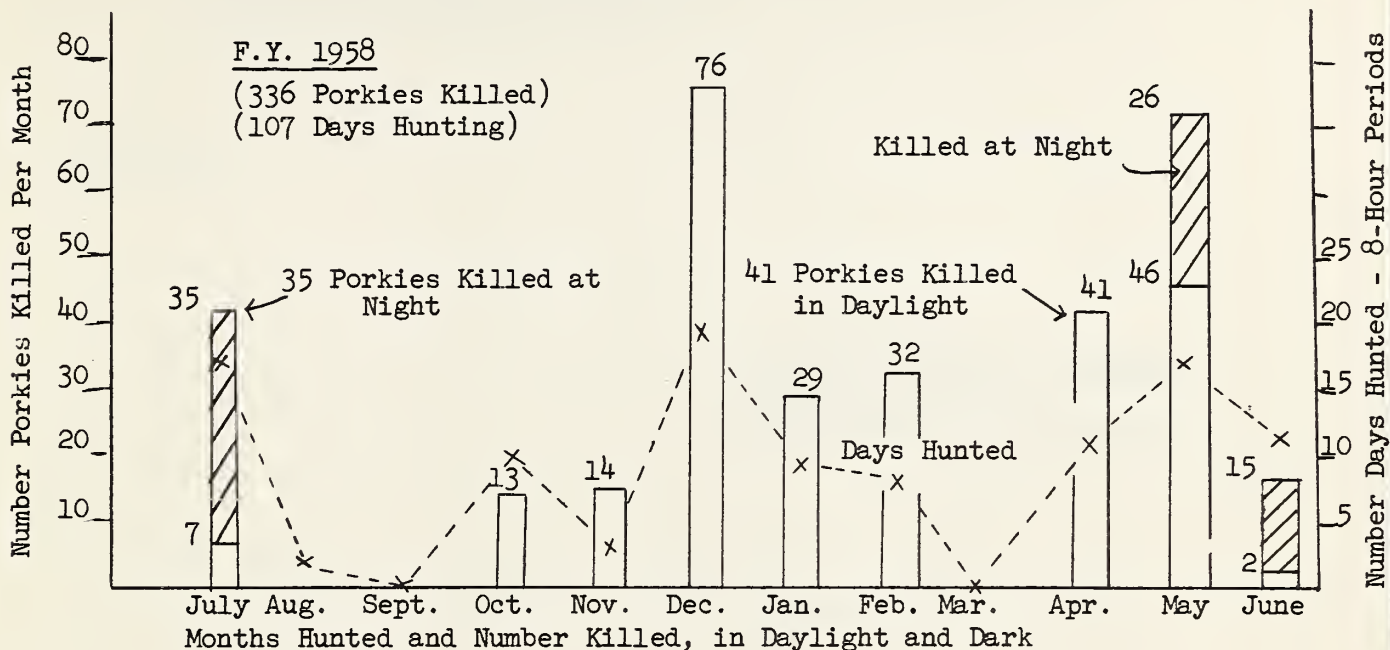
<u>Cost Item</u>	<u>F.Y. 1958</u>		<u>F.Y. 1959</u>	
	<u>Amount</u>	<u>Cost</u>	<u>Amount</u>	<u>Cost</u>
Wages, GS-4 hunter (includes Ann. Lv.)	1,338 hrs.	\$2,346	1,210 hrs.	\$2,118
Vehicle miles	4,766 mi.	440	4,248 mi.	425
Supplies - ammunition, salt blocks, flash lights, spot lights, alum- inum nails, bait boxes.	) ) ) ) )	- 36	--	264
Total Cost		\$2,822		\$2,807
Porkies killed - hunting and trapping		387		505
Cost per porky		\$ 6.56		\$ 5.55 (\$4.11 by hunting only)

F.Y. 1958 Cost Of:

	<u>Cost</u>	<u>No. Of Each</u>	<u>Cost Per Unit</u>
Placing salt blocks	\$ 284	71 blocks	\$4.00 per block
Hunting and trapping	\$2,538	387 porkies	\$6.56 per porky
Total Project	\$2,822	--	--

8. Porcupines killed by project hunter - F.Y. 1958, Santa Fe N.F., R-3.

(Crosshatch Indicates Night Kills)





9. Attached is a copy of memorandum dated July 13, 1957 giving job description and instructions for a GS-4 Forestry Aide (general) on porcupine control.

Attachment

U. S. Forest Service  
DIVISION OF TIMBER MANAGEMENT  
630 Sansome Street  
San Francisco 11, California



FOREST SERVICE SANTA FE, NEW MEXICO

TO : A. R. GALYEAN - Project Porcupine Hunter June 13, 1957

FROM : C. A. MERKER, Forest Supervisor, By

SUBJECT: S-CONTROL - Animals - Porcupine

The following is to be considered a general outline of instructions for your position:

I. TERMS OF HIRE AND FISCAL ACCOUNTING

- A. Your appointment is at grade GS-4 \$3415. per annum, Forestry Aid (General). Annual leave will be earned at the rate of 6 hours per pay period, however, in order to qualify for annual leave you must complete a tour of duty of 90 calendar days. Until you have passed a qualifying civil service examination and received a formal appointment you can work but 180 working days during any one year in this position.

At present your work period during the pay period will be 10 consecutive days on duty during which time you will be expected to work 8 hours per day but will not exceed 40 hours per week except in the possible case of fire.

- B. You will use your pick-up for official travel in connection with your job on a mileage basis of \$.08 per mile for travel and \$.15 per mile when in a hauling status. All records of mileage claims will be shown in your diary, by day, indicating speedometer readings and points of travel.
- C. At the end of each pay period you will notify the Supervisor's office via the District Ranger on whose district you are working of your work time, indicating the day, hours worked, and on what activities. All fire time will be shown separately from time worked on the normal job. At the end of each month you will submit an expense account to cover mileage and per diem.
- D. You will keep a complete diary of each day worked, indicating the hours worked, miles traveled by vehicle, the activity performed, and pertinent information which you may discover concerning your job, as well as the number of porcupine killed each day and method used in killing.
- E. Supplies and items necessary to carry on the job will either be requisitioned directly from this office or the Ranger's on whose district you are working.
- F. You will be responsible for the proper protection and accounting of all Government equipment.



## II. OUTLINE OF DUTY

- A. There is little known regarding the most successful methods to be used in control of the porcupine. Your present position to some extent is an experiment and as such you will be expected to try different methods of control which appear to have the best likelihood of success, and you will keep adequate notes on these methods for use in future control projects. You should study the habits of this rodent and from that knowledge design your methods of control to effect most efficient reduction of porcupine numbers. Wildlife Leaflet 328, The Porcupine, Its Economic Status and Control, contains some information and hints on control. You should become familiar with this publication.
- B. Since little is known regarding proper methods to use in porcupine control you will be given considerable latitude in method you employ, hours of the day you work, etc., in order that you may work most effectively on this project.

While you will be directly supervised from the Forest Supervisor's office, the Ranger on whose district you are located will also assist in this supervision, as well as assist you in your job to the extent possible.

Should you find that night hunting is most successful you should adjust your work hours to this period.

## III. HUNTING AND SHOOTING OF PORCUPINES

- A. If possible you should train a dog to assist you in this method. Night hunting with the use of lights, provided the State approves this method, should be most effective at certain times.

## IV. USE OF STRYCHNINE SALT BAIT

- A. Strychnine salt baits will be set out in certain roost trees as described in Leaflet 328. Due to the danger of this poison, all baits will be securely fastened to the tree well above ground and away from domestic stock and other wildlife. All bait trees will be located only on Forest land and be designated with a big painted P three feet high on two sides of the tree and located on a map for future identification. You will carry out to the letter instructions given you by the Federal Fish and Wildlife Service in use and storing this material. All made up blocks and extra poison salt will be kept under lock and properly identified at all times.

## V. TRAPS

- A. Traps will be set at dens chiefly in rocky areas and tended often enough to assure the efficiency of the method. They will be relocated as the circumstances warrant, and accounting will be made of all traps which have been issued you. The setting of traps will be done in such a manner as to avoid catching other wildlife and domestic animals, to a minimum feasible to this method of control.

VI. OTHER MEASURES

- A. Other measures of control which you may be able to devise will be carried out to the extent that they are effective in control of this rodent and economically sound. In all methods of control proper safeguards must be afforded other wildlife and domestic stock, as well as private property owners' rights.

VII. FIRE CONTROL

- A. Fire suppression has first priority over all jobs. In the event you discover a fire, either report it first to the nearest member of the District fire organization, or, if this is not practicable, go to the fire and control it. Stay with all fires until "dead out" or you are properly relieved. Fire tools have been issued you for fire control purposes. They should be kept available for this use and in proper condition at all times. If called upon to go to a fire by the Ranger or his authorized representative, you will be expected to go.

VIII. SAFETY

- A. You will observe all safety requirements, and will be particularly careful in the use of fire arms and poison. All accidents will be properly reported and treated as soon as possible. You will become acquainted with the safety code as it pertains to your job and carry out the various provisions to the letter.

IX. OTHER

- A. All vehicles, trailers, horses, and other equipment assigned will receive proper care and use on the job. Drivers license will be issued on successful completion of tests for use of vehicle and trailer.
- B. All State Game laws and rights of private land owners will be observed.
- C. You will be careful with the use of fire both in the woods and at camp. The smoking requirements will be observed.
- D. You will keep all camps and Government buildings which you may use clean and orderly.

I have no doubt that you will carry out the above to the best of your ability. It is hoped that through your work a successful medium of control may be devised to hold in check this harmful rodent.



ROSTER - ATTENDANCE AT INTERREGIONAL TRAINING SESSION ON PORCUPINE  
CONTROL, OCTOBER 1959, MODOC N.F., ALTURAS, CALIFORNIA

<u>Region</u>	<u>Location</u>	<u>Name</u>	<u>Duties</u>
5	R.O., San Francisco	Tom Harris	Sec. Hd. Pest Control, Planting, TSI
"	" " "	James L. Averell	Insect & Animal Control
"	Eldorado N.F.	Jerry Hill	S.O., Pest Cont., Pltg, TSI
"	Inyo N.F.	Rgr. Bill Murphy	Mammoth Dist. Rgr.
"	Klamath N.F.	Norm Dircksen	S.O., Pest Cont., Pltg, TSI
"	" "	Bill Cadola	G.D.A., Callahan Dist.
"	" "	Jim Arasin	J.F., Goosenest Dist.
"	Lassen N.F.	John Mitchell	S.O., Pest Cont., Pltg, TSI
"	" "	Rgr. Bill Griffin	Hat Creek Dist. Rgr.
"	Modoc N.F.	Supv. Joe Thornton	Forest Supervisor, Alturas
"	" "	Ken Smith	S.O., T.M.O., Alturas
"	" "	Glenn Davies	T.M.A., Goose Lake Dist.
"	" "	Bud Usher	A.D.R., " " "
"	" "	Wes Hamilton	T.M.A., Surprise Valley Dist.
"	" "	Tom Bouse	P.S.O., " " "
"	" "	Milt Evans	Scaler, " " "
"	" "	Rgr. Lyle Klubben	Dist. Rgr., So. Fk. Dist.
"	" "	Jim McLean	A.D.R., " " "
"	" "	Bob Jessen	T.M.A., " " "
"	" "	Bill Welder	Crew Foreman, Big Valley
"	" "	Gordon Heebner	Wildlife Biologist, Devils Garden
"	Plumas N.F.	Phil Intorf	S.O., Pest Cont., Pltg, TSI
"	" "	Ed Falkner	T.M.A., Milford Dist.
"	Stanislaus N.F.	Riley Gilkey	P.S.O., Groveland Dist.
"	" "	Fred Perry	S.O., Pest Cont., Sonora
"	Tahoe N.F.	Hal Turner	S.O., T.M.O., Nevada City
"	" "	Paul Gordon	S.O., W.L. Biologist
"	" "	Bill Lambert	S.O., Pest Cont., Pltg, TSI
2	R.O., Denver, Colo.	Milt Andrews	Sec. Hd. Pest Cont., Pltg, TSI
3	R.O., Albuquerque, New Mexico	Jay Cravens	" " " " "
"	" "	Ernie Hardman	R.O., T.M.
4	R.O., Ogden, Utah	Don Goodrich	Reforestation, Coop.
6	R.O., Portland, Ore.	Ben Howard	Sec. Hd. Pest Cont., Pltg, TSI
"	Ochoco N.F.	Jim Thompson	S.O., T.M.O., Prineville
"	Malheur N.F.	Rgr. Walter Johannsen	Dist. Rgr., John Day
"	Umatilla N.F.	Herman Dill	S.O., T.M.O., Pendelton
"	Whitman N.F.	Paul Talich	S.O., T.M.O., Baker
"	Fremont N.F.	Rudy Robles	T.M.A., Drew Valley

<u>Region</u>	<u>Location</u>	<u>Name</u>	<u>Duties</u>
CDF	Sacramento	Dan Dotta	Pest Control
"	Oroville	Chas. Wagener	Service Forester
BLM	Susanville	Don Halsey	Administrator
"	"	Bill Patterson	"
U.S.F.& W.L. Ser.	Sacramento Placerville	Don McIntosh Merle Barney	Tech. Advisor, Rodent Cont. Field Supervisor
State Dept. Fish & Game	Redding	Jim Gilman	Game Manager
Timber <u>Industry</u>	Klamath Falls, Ore.	George Kilen	Weyerhaeuser Co. Forester

46 Total

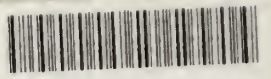




R0001 090553

*or*





R0001 090553